UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/030,822	01/16/2002	Takashi Aoki	111673	2396

7590 08/24/2004

Oliff & Berridge
PO Box 19928
Alexandria, VA 22320

EXAMINER	
FULLER, RODNEY EVAN	
ART UNIT	PAPER NUMBER
2851	

DATE MAILED: 08/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/030,822	AOKI ET AL.	
	Examiner	Art Unit	
	Rodney E Fuller	2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 June 2004*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20,22 and 24-35* is/are rejected.

7)☒ Claim(s) *21 and 23* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *April 10, 2002* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Rodney Fuller
Primary Examiner

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *06/02/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Remarks

1. In response to applicant's Amendment, dated June 2, 2004, the examiner acknowledges the addition of claims 30-35. Claims 1-35 are pending.

Regarding the rejections set forth in the Office Action mailed November 13, 2003, the examiner has considered the applicant's arguments and withdraws the rejections.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-20, 22 and 24-35 are rejected under 35 U.S.C. 102(b) as being anticipated by Komoriya, et al. (US 5,025,284).

Regarding claim 1, Komoriya discloses "supplying a gas (Fig. 7, ref.# 32) through which the exposure light beam is transmitted (Fig. 7, ref.# 9), from a tip or interior of the projection optical system (Fig. 7, ref.# 9; see arrows indicating gas flow from ref.# 32 to ref.# 22) toward an exposure area on the second object (Fig. 7,ref.# 22)."

Regarding claims 2, 26, 32, 34 and 35, Komoriya discloses "wherein the gas, through which the exposure light beam is transmitted, is aspirated from the exposure area." (Fig. 7, see arrows indicating gas flow away from the exposure area)

Regarding claims 3, 24, 27, 30, 31 and 33, Komoriya discloses "wherein a supply passage (Fig. 7, ref.# 32) which supplies the gas through which the exposure light beam is transmitted, toward an optical path for the exposure light beam, and a discharge passage (Fig. 7, see end of ref.# 9 with arrows showing flow of gas from the optical path) which discharges the gas from the optical path for the exposure light beam are provided between the tip of the projection optical system and the second object (Fig. 7, ref.# 22)."

Regarding claim 4, Komoriya discloses "supplying a gas (Fig. 7, ref.# 32) through which the exposure light beam is transmitted, to a space between the projection optical system (Fig. 7, lens inside ref.# 9) and the second object (Fig. 7, ref.# 22); and controlling (column 6, lines 15-18) a state of flow of the gas depending on a position of a stage which positions the second object."

Regarding claim 5, Komoriya discloses "wherein a flow rate of the gas is increased when an exposure area on the second object is set at an end of the stage." (column 6, lines 12-21)

Regarding claims 6, 25 and 28, Komoriya discloses "a guide member (Fig. 7, ref.# 9) which is arranged between the second object (Fig. 7, ref.# 22) and the projection optical system (Fig. 7, lenses inside ref.# 9) and which is provided with an aperture (Fig. 7, end of ref.# 9 near ref. # 22) for allowing the exposure light beam having passed through the projection optical system to pass therethrough; and a gas supply unit (Fig. 7, ref.# 34, 35) which supplies a gas through which the exposure light beam is transmitted through the aperture of the guide member toward the second object (Fig. 7, ref.# 22)."

Regarding claim 7, Komoriya discloses "a gas-aspirating unit (Fig. 7, ref.# 50, 51) which aspirates the gas flowing through a space between the guide member and a surface of the second object toward an outer circumferential side of the second object."

Regarding claim 8, Komoriya discloses "wherein an optical member (Fig. 7, lens at end of ref.# 9 nearest ref.# 22) of the projection optical system, which is disposed at a position closest to the second object (Fig. 7, ref.# 22), is also used as the guide member."

Regarding claims 9 and 11, Komoriya discloses "a stage (Fig. 7, ref.# 21) which positions the second object, wherein a height of an upper surface of the stage is substantially the same as a height of a surface of the second object."

Regarding claim 10, Komoriya discloses "a stage (Fig. 7, ref. # 21) which positions the second object; a gas supply unit (Fig. 7, ref.# 34, 35) which supplies a gas through which the exposure light beam is transmitted, to a space between the projection optical system (Fig. 7, lens inside ref.# 9) and the second object (Fig. 7, ref.# 22); and a control unit (Fig. 7, ref.# 38) which controls a state of flow of the gas supplied by the gas supply unit, depending on a position of the stage."

Regarding claim 12, Komoriya discloses "wherein the exposure light beam (Fig. 4, ref. # 2) is a light beam in a wavelength region in which the light beam is greatly absorbed by oxygen, and the gas is chemically inert (column 5, lines 54) from which any impurity is removed."

Regarding claim 13, Komoriya discloses "providing the projection optical system (Fig. 8, ref.# 6); providing a guide member (Fig. 8, ref.# 9) having an aperture (Fig. 8, ref.# 9 end near ref.# 22) for allowing the exposure light beam having passed through the projection optical system to pass therethrough, at an end of the projection optical system

on a side of the second object (Fig. 8, ref.# 22); and providing a gas supply unit (Fig. 7, ref.# 34, 35) which supplies a gas through which the exposure light beam is transmitted, the gas supply unit supplying the gas toward the second object (Fig. 7, ref.# 22) through the aperture of the guide member (Fig. 7, ref.# 9).

Regarding claim 14, Komoriya discloses "providing the projection optical system (Fig. 8, ref. # 6) and a stage (Fig. 7, ref.# 21) which positions the second object (Fig. 7, ref.# 22); providing a gas supply unit (Fig. 7, ref.# 34, 35) supplying the gas between the projection optical system and the second object (Fig. 7, ref.# 22); and providing a control unit (Fig. 7, ref.# 38) which controls a state of flow of the gas supplied by the gas supply unit, depending on a position of the stage."

The method step of claim 15 is met by the operation of Komoriya as applied to claim 1.

Regarding claims 16 and 18, Komoriya discloses "wherein the gas, which is supplied to the space between the projection optical system and the second object, is discharged." (Fig. 7, see arrows indicating gas flow near ref.# 22)

Regarding claims 17, 20 and 29, Komoriya discloses "wherein the supply of the gas (Fig. 7, ref.# 32) and the discharge of the gas (Fig. 7, end of ref.# 9 near ref.# 22) are performed at symmetrical positions in relation to an optical axis of the projection optical system (Fig. 8, ref.# 6)."

Regarding claim 19, Komoriya discloses "a gas discharge tube (Fig. 7, ref.# 9) which discharges the gas supplied to the space between the projection optical system (Fig. 8, ref. # 6) and the second object (Fig. 7, ref.# 22)."

Regarding claim 22, Komoriya discloses "wherein the control unit (Fig. 7, ref. # 38) controls the state of the flow of the gas by changing a position of the gas discharge tube." (column 6, lines 13-19)

Allowable Subject Matter

4. Claims 21 and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rodney E Fuller whose telephone number is 571-272-2118. The examiner can normally be reached on 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on 571-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Rodney E Fuller
Primary Examiner
Art Unit 2851

August 19, 2004